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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,128	03/11/2004	Akihito Ogawa	250363US2S	4657

22850 7590 01/22/2007  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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ALUNKAL, THOMAS D

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/797,128

Applicant(s)

OGAWA ET AL.

Examiner

Thomas D. Alunkal

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 4, 5 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3,8,9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki (US 5,999,504).

Regarding claim 1, Aoki discloses an information storage medium evaluation method for evaluating an information storage medium (Figure 2, Element 12) which comprises a wobbled track that is used to guide a light beam and is wobbled in correspondence with a frequency (Figure 11), a phase of which is modulated at predetermined timings to reflect predetermined information (Column 7, lines 15-18), comprising squaring a reproduction signal corresponding to the wobbled track (Figure 8, i.e. the double multiplied wobble signal), obtained from reflected light of the light beam with which the wobbled track is irradiated (Column 6, lines 17-24) and evaluating quality of the wobbled track on the basis of frequency characteristics of the squared reproduction signal (Figure 8, i.e. the low pass filter output from the double multiplied

wobble signal and Column 4, lines 53-61. Specifically, a quality C/N ratio is determined and maintained based on the double multiplied wobble signal).

Regarding claim 3, Aoki discloses an information storage medium evaluation apparatus for evaluating an information storage medium, which comprises a wobbled track that is used to guide a light beam and is wobbled in correspondence with a frequency (Figure 11), a phase of which is modulated at predetermined timings to reflect predetermined information (Column 7, lines 15-18), comprising a detection unit configured to detect reflected light of a light beam with which the wobbled track formed on the information storage medium is irradiated (Figure 2, Element 15), a filter unit configured to suppress noise from a reproduction signal corresponding to the wobbled track on the basis of the reflected light detected by the detection unit (Figure 9, Element 5), a squaring unit configured to square the reproduction signal from which the noise is suppressed by the filter unit (Figure 9, Element 43), an evaluation unit configured to evaluate quality of the wobbled track on the basis of frequency characteristics of the squared reproduction signal squared by the squaring unit (Column 4, lines 53-61. Specifically, a quality C/N ratio is determined and maintained based on the double multiplied wobble signal. These evaluation means are inherently provided within optical disc drive 13 of Figure 2).

Regarding claim 8,9, and 10, these claims contain limitations similar to those of claim 3 and are rejected over the same grounds.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (US 5,999,504) as applied to claim 1,3,8,9, and 10 above, and further in view of Horie et al (hereafter Horie)(US 5,862,123).

Regarding claim 2, Aoki does not disclose a numerical standard for which the C/N ratio is to be maintained. Rather, in Column 4, lines 56-58, Aoki discloses that the C/N ratio of the reproduced double multiplied wobble signal is simply high. In the same field of endeavor, Horie discloses that the difference between peak and noise levels obtained from the frequency characteristics of the reproduction signal is a minimum of 25 dB (Column 10, lines 13-15).

One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide the preferred lower C/N ratio limit of Horie to the disc evaluation method of Aoki, motivation being to assure proper address readout from the optical disc (Column 24, lines 4-8 of Horie).

Regarding claim 6, see the combination of Aoki and Horie's teachings of claims 1 and 2 above. Claim 6 contains similar limitations to claims 1 and 2 and is rejected over the same grounds.

***Allowable Subject Matter***

Claims 4,5 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 4, none of the references alone or in combination suggest or fairly teach the apparatus according to claim 3, wherein when the squaring unit squares a predetermined sine wave and outputs the squared sine wave, a peak level at a predetermined frequency obtained from frequency characteristics of the sine wave appears at a frequency twice the predetermined frequency in frequency characteristics of the squared sine wave (this is an inherent property of squaring a signal in the frequency domain), and **the evaluation unit has characteristics that set a residual peak level corresponding to a residual level in a carrier component obtained from the frequency characteristics of the squared sine wave to be lower by not less than 30 dB than a peak level that appears at the frequency twice the predetermined frequency.**

Regarding claim 5, none of the references alone or in combination suggest or fairly teach the apparatus according to claim 3, wherein when the squaring unit multiplies a predetermined sine wave containing a noise component and outputs the squared sine wave, a peak level at a predetermined frequency obtained from frequency characteristics of the sine wave appears at a frequency twice the predetermined frequency in frequency characteristics of the squared sine wave (this is an inherent property of squaring a signal in the frequency domain), and **the evaluation unit has**

**characteristics that set a difference between a first difference between peak and noise levels obtained from the frequency characteristics of the sine wave and a second difference between peak and noise levels obtained from the frequency characteristics of the squared sine wave to be not more than 7 dB.**

Regarding claim 7, none of the references alone or in combination suggest or fairly teach a medium according to claim 6, wherein the wobbled track is formed so that a peak level at a predetermined frequency obtained from frequency characteristics of the reproduction signal appears at a frequency twice the predetermined frequency in the frequency characteristics of the squared reproduction signal (this is an inherent property of squaring a signal in the frequency domain), and **a residual peak level corresponding to a residual level in a carrier component obtained from the frequency characteristics of the squared reproduction signal is lower by not less than 30 dB than the peak level which appears at the frequency twice the predetermined frequency.**

### ***Conclusions***

The art made of record and not relied upon is considered pertinent to the applicant's disclosure: Senshu (US PgPub 2003/0103429) discloses a disc recording medium that limits the C/N ratio based on wobble to various thresholds. Suzuki (US PgPub 2002/0051416) discloses an optical recording method used to maintain a preferred C/N range of near 30 dB. Endoh et al (US 6,487,164) discloses numerous

tables regarding typical error to C/N ratio relationships. Kuribayashi et al (2002/0131352) disclose a signal processing apparatus used to control crosstalk.

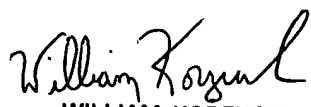
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Alunkal whose telephone number is (571)270-1127. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571)272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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